

06041

1 IN THE CIRCUIT COURT OF SHELBY COUNTY, TENNESSEE  
2 FOR THE THIRTIETH JUDICIAL DISTRICT AT MEMPHIS

3  
4 BOBBY NEWCOMB,

5 Plaintiff,

6 - vs - Case No. 88913-8 T.D.

7 R.J. REYNOLDS TOBACCO COMPANY, and  
8 THE BROWN AND WILLIAMSON TOBACCO  
9 COMPANY, as successor by merger to  
10 THE AMERICAN TOBACCO COMPANY,

11 Defendants.

12  
13 Before: The Honorable D'Army Bailey

14  
15  
16 TRANSCRIPT OF PROCEEDINGS

17  
18 March 25, 1999  
19 (Morning Session)

20  
21 Volume 39

22  
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1  
2 EDITH KARNEY, Individually, and  
3 On behalf of the Estate of  
4 JAMES WILEY KARNEY,  
5 Plaintiffs,

6 - vs - Case No. 89196-8 T.D.

7 PHILIP MORRIS, INC., and  
8 PHILIP MORRIS COMPANIES, INC.,  
9 Defendants.

10  
11 RUBY SETTLE, Individually, and  
12 On behalf of the Estate of  
13 RAYMOND SETTLE,

14 Plaintiffs,

15 - vs - Case No. 89226-8 T.D.

16  
17 B.A.T. INDUSTRIES, PLC; BATUS HOLDINGS,  
18 INC.; BROWN & WILLIAMSON TOBACCO  
19 CORPORATION; BRITISH AMERICAN TOBACCO  
20 COMPANY, L.T.D.,

16

Defendants.

17

18 DENISE McDANIEL, Individually,  
and On behalf of the Estate of

19 FLORENCE BRUCH,

20 Plaintiff,

21 - vs -

Case No. 90832-8 T.D.

22

BROWN AND WILLIAMSON TOBACCO

23 CORPORATION, and

PHILIP MORRIS, INC.,

24

Defendants.

25

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(At 10:33 a.m., on the 25th day of  
March, 1999, Court met, pursuant to adjournment,  
when and where the following proceedings occurred,  
to wit:)

(Out of the presence of the jury.)

THE COURT: All right. Doctor, you may  
resume the witness stand.

THE WITNESS: Thank you, Your Honor.

THE COURT: All right. Are we ready for  
the jury?

MR. WILNER: Yes, Your Honor.

MR. JAMES JOHNSON: Yes, Your Honor.

(Whereupon, the jury was seated in the  
jury box.)

THE COURT: Good morning, ladies and  
gentlemen.

THE JURORS: Good morning.

THE COURT: Thank you for being back in a  
timely manner. And when we finished yesterday  
afternoon, Mr. Wilner was continuing his  
cross-examination of Dr. Townsend.

Mr. Wilner, you may continue.

MR. WILNER: Thank you, Your Honor.

( Next page, please.)

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DAVID TOWNSEND,

2 having been previously duly sworn by the Clerk to  
3 tell the truth, the whole truth and nothing but the  
4 truth, returned to the witness stand and testified  
5 as follows:

6 CROSS-EXAMINATION (Cont'd.)

7 BY MR. WILNER:

8 Q. Good morning, Dr. Townsend.

9 A. Good morning.

10 Q. We'll try to get you out of here as soon  
11 as we can today. Okay?

12 You had a chance to review your testimony  
13 last night with the attorneys for R.J. Reynolds?

14 A. Discussed several issues. I haven't  
15 really reviewed my testimony as such.

16 Q. Did you discuss the explanation of the  
17 234 percent increase and overall death rate for  
18 your product?

19 A. No. It's really not my area of  
20 expertise.

21 Q. You've been groomed actually to testify  
22 by R.J. Reynolds in all sorts of cases, haven't  
23 you?

24 A. No. I don't agree with that at all. I  
25 haven't been groomed at all. I'm a scientist. I

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1 know a fair amount about the scientific work that  
2 we do. I've directed a lot of that research. I  
3 certainly haven't be groomed as such.

4 Q. Well, have you been to witness school?

5 A. No, sir.

6 Q. Have you seen your videotapes of your  
7 testimony?

8 A. The only kind of training I've had is one  
9 day in New York I attended a media training class  
10 because at that time I was very involved in the  
11 science of fair-safe cigarettes, how to reduce the  
12 ignition propensity or likelihood of starting fires  
13 by cigarettes. And at that point in time there was  
14 a lot of media attention. So I attended a one-day  
15 course in New York to try to understand how to  
16 answer questions from the media in a way that they  
17 can use the answers.

18 I think there was a subsequent half-day  
19 session, again, focusing on fire safety. That was  
20 held in Winston-Salem. So I would say a day and a  
21 half of media training. I've never attended any  
22 other kind of training.

23 Q. But you've testified in cases all over  
24 the country for R.J. Reynolds?

25 A. Well, there's been a lot of litigation

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1 recently against the tobacco industry. I've  
2 testified in a number of trials.

3 Q. And you've been in Florida?

4 A. Yes.

5 Q. You've been in Chicago?

6 A. No.

7 Q. Have you been -- Have you testified,  
8 let's see, in the class-action in Florida?

9 A. What case are you thinking of?

10 Q. In Miami?

11 A. Oh, yes.

12 Q. The state cases in Washington?

13 A. No.  
14 Q. You were deposed in any of the State  
15 cases?  
16 A. I was deposed in a couple state cases.  
17 Q. Over basically the subject matter we've  
18 been talking about?  
19 A. Exactly the subject matter that we've  
20 been talking about: Cigarette design and using  
21 cigarette design, addressing the reduction of the  
22 risks of smoking.  
23 Q. Well, let's continue that, then, if we  
24 could. I had shown you just before we broke  
25 page 94. Do you still have my copy of the 1989

06049

1 Surgeon General report?  
2 A. Yes.  
3 Q. Okay. So I was showing you page 94,  
4 which says, "Tumorigenic likely causative agents  
5 for tobacco-related cancer." Do you see that?  
6 A. Table 11 says, "Likely causative agents  
7 for tobacco-related cancers."  
8 Q. And under "lung" and "larynx," it gives  
9 PAH and something called NNK and then something  
10 called polonium-210, which says, "A minor factor."  
11 Now, that's where we were yesterday, right?  
12 A. We looked at this yesterday.  
13 Q. Now, polonium-210 is a radioisotope, is  
14 it not?  
15 A. Yes.  
16 Q. Radioactive?  
17 A. Yes.  
18 Q. Emits alpha particles?  
19 A. I think so, yes.  
20 Q. Which are helium nuclei?  
21 A. It emits radioactive particles.  
22 Q. Do you know what kind?  
23 A. Not exactly for polonium-210, no.  
24 Q. Well, alpha particles are the ones that  
25 have the short-range effect, and they're very bad

06050

1 if you ingest the substance, right?  
2 A. I don't know anything about the biology  
3 of radioactive materials. I believe polonium-210  
4 is probably an alpha emitter.  
5 Q. And the alpha emitters are the ones  
6 that -- they can't go through much. In fact, paper  
7 stops alpha emissions. But when you ingest it,  
8 then it irradiates the issue that's immediately  
9 surrounding it, right?  
10 THE COURT: Just a minute, please.  
11 MR. JAMES JOHNSON: Objection,  
12 Your Honor. Again, the witness has indicated his  
13 lack of knowledge in this area. And this seems to  
14 be simply an attempt for Counsel to testify about  
15 his scientific conclusions.  
16 THE COURT: Overruled.  
17 THE WITNESS: I'm sorry. Your question  
18 was what, sir?  
19 Q. BY MR. WILNER: When you talk about  
20 radioisotopes, really they're alpha emitters, beta  
21 and gamma, correct?  
22 A. That's correct.  
23 Q. And alpha are helium nuclei with very

24 short-range effects. Beta are electrons with  
25 intermediate-range effects. And gamma are rays

06051

1 that can penetrate through lead, true?

2 A. I think that's fair.

3 Q. And polonium-210 is a radioisotope, but  
4 polonium is an alpha emitter. We've established  
5 that, right?

6 A. I believe it is.

7 Q. And the danger of alpha emitters is not  
8 that you'll -- you'll get them across the room but  
9 that when you ingest the substance that is an alpha  
10 emitter, the energy is taken up by the tissues  
11 right around the substance that's ingested, true?

12 A. Well, I don't know. I'm not an expert in  
13 this area. I know polonium-210 was one theory  
14 examined by the medical community and the public  
15 health community as to why cigarette smoking is a  
16 risk.

17 Q. Well, why didn't Reynolds investigate  
18 polonium-210? You know it's in the cigarette.

19 A. We investigated ways to reduce or  
20 eliminate polonium-210. We looked at the theory  
21 carefully and tried to figure out why it is  
22 polonium-210 is present in cigarettes at very low  
23 levels. We determined that it's present because  
24 it's in the atmosphere. And, as tobacco grows in  
25 the field, there's some deposition of polonium-210

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1 on the tobacco, just as it is on any crop, from the  
2 atmosphere.

3 We also looked at ways to reduce or  
4 eliminate polonium-210.

5 Q. What's the half-life of polonium-210?

6 A. I really don't know.

7 Q. Wouldn't that be something that you would  
8 be involved in?

9 A. The polonium-210 theory came about in  
10 the -- well, in the 60s primarily. A number of  
11 scientists looked at it. I didn't do direct  
12 research on it myself, other scientists did at  
13 Reynolds. I hadn't gone in and evaluate it or  
14 investigate it, all of the details of polonium-210,  
15 such as the half-life and that sort of thing.

16 Q. Okay. Let's go back to these. We talked  
17 about PAHs. And the PAHs are the polyaromatic  
18 hydrocarbons, correct?

19 A. That's right.

20 Q. They're known to be carcinogens for years  
21 and years, true?

22 A. Through mouse skin painting studies some  
23 of the PAHs have been clearly demonstrated to be  
24 animal carcinogens. Some of the PAHs since then  
25 have been thought and designated by IARC to be

06053

1 probable human carcinogens.

2 Q. That's been known for years?

3 A. Well, to different degrees.

4 Q. By chemists as well as by biologists,  
5 true?

6 A. I think that's fair but, again, to  
7 different degrees.

8 Q. In fact, in our organic chemistry

9 textbook that you identified earlier, it talks  
10 about the polyaromatic hydrocarbons as -- "Much of  
11 the interests in complex polynuclear hydrocarbons  
12 has arisen because a considerable number of them  
13 have cancer-producing properties"; is that true?

14 A. I think the number of PAHs have been  
15 shown to be carcinogens.

16 Q. And this was in the textbook in 1966,  
17 true?

18 A. Well, I think information like that was  
19 available in the scientific community long before  
20 1966.

21 Q. So if I show you, then, a picture of  
22 these polyaromatic hydrocarbons from this textbook,  
23 will you confirm for me these are the molecular  
24 structures of the polyaromatic hydrocarbons?

25 MR. WILNER: And, Ms. Stieger, if you

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1 will zoom out just a little bit so I can slide up  
2 so I can get the benzopyrene. And I think we need  
3 to be over at this page. Thank you.

4 Now, these are the polyaromatic  
5 hydrocarbons, so-called because this is called an  
6 aromatic or benzene ring, correct?

7 A. That's right.

8 Q. And when they're fused -- joined together  
9 like this, it's called poly, for more than one,  
10 aromatic and hydrocarbon because they're basically  
11 composed of carbon and hydrogen, correct?

12 A. That's right.

13 Q. And when you get to this particular  
14 little devil here, this is 3, 4-benzopyrene which  
15 is what we've been calling BaP in this case, right?

16 A. It is the chemical structure for  
17 benzopyrene.

18 Q. And it's composed of five benzene rings  
19 joined in that particular structure, right?

20 A. That's right.

21 Q. And this a family. And this isn't even  
22 all of the polyaromatic hydrocarbons, true?

23 A. Of course. We saw a table yesterday that  
24 you, in fact, asked me about that had a large list  
25 of polyaromatic hydrocarbons.

06055

1 Q. And this says, "Some of the most powerful  
2 carcinogens are derivatives of  
3 1, 2-benzanthracene." And then it gives these,  
4 which include BaP, right?

5 A. That's what it says.

6 Q. So this was available to anyone who had  
7 the ability to pick up a textbook in chemistry in  
8 1966, right?

9 A. As I said, this information was available  
10 long before 1966.

11 Q. All right. But in 1966 how would anyone  
12 know how much benzopyrene was in a Winston? I mean  
13 somebody outside of Reynolds.

14 A. Oh, I think scientists outside Reynolds  
15 certainly knew because there was quite a lot of  
16 information in the scientific literature.

17 If you're asking the question, did  
18 consumers know? Unless they went to the scientific  
19 literature or saw certain articles in Reader's

20 Digest, for example, they probably didn't know.

21 Q. Reader's Digest published figures on  
22 benzopyrene or just figures on tar?

23 A. Reader's Digest had an article as early  
24 as 1950 talking about benzopyrene present in  
25 cigarette smoke. That was before we had good

06056

1 quantitation of the levels. But there was some  
2 information in the public literature.

3 Q. Well, I'm talking about a Winston. Your  
4 company makes Winston among other things, true?

5 A. We make Winston among other things, true.

6 Q. So I'm trying to focus on one thing at a  
7 time. Not just that there might be some of these  
8 in smoke, but if they wanted to know whether they  
9 should smoke this as opposed to something else, how  
10 would they know? Sir?

11 A. There is some information in the  
12 scientific literature. I think if they called  
13 Reynolds, I don't see any reason why we wouldn't  
14 tell them. We've told this jury in this courtroom  
15 exactly how much benzopyrene is present in Winston  
16 both in 1956 and 1954 and also today.

17 Q. So your answer is if somebody wanted to  
18 know what to smoke, they should call Reynolds after  
19 they read the scientific textbooks and figure out  
20 whether that benzopyrene is a carcinogen, and then  
21 call and ask and you'll tell them?

22 A. I would, certainly.

23 THE COURT: Just a minute.

24 MR. JAMES JOHNSON: Objection,  
25 Your Honor. May I approach?

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1 THE COURT: You may.

2 (Whereupon, the following discussion took  
3 place at the bench.)

4 MR. JAMES JOHNSON: Your Honor, as it  
5 should be clear by now, the point of this whole  
6 line of questioning is that Reynolds did not warn  
7 consumers about the quantities of BaP that is in  
8 the smoke of Winston cigarettes.

9 Your Honor -- and Mr. Wilner may have  
10 missed this -- has entered an order saying that all  
11 failure-to-warn claims have been dismissed from  
12 these cases; thus this whole line of inquiry is not  
13 relevant.

14 MR. WILNER: I had nothing to do with  
15 that. Fraudulent concealment and consumer  
16 expectation. Furthermore, we've been talking about  
17 1966, for God's sake. But even if we're not  
18 talking about 1966, it talks about fraud. It talks  
19 about consumer expectation of the defect in the  
20 product, an element of defect.

21 MR. JAMES JOHNSON: As Your Honor may  
22 recall, all failure to warn claims were dismissed,  
23 not simply the ones after 1966 because of the  
24 action of the Tennessee statute of repose. Clearly  
25 this testimony is directed to why didn't Reynolds

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1 tell consumers about the amount of BaP in its  
2 Winston cigarettes.

3 THE COURT: Well, I think that's slicing  
4 it pretty thin for me to say that this can only be



5 relevant to the failure-to-warn. If Mr. Wilner  
6 continues to prosecute a claim for fraudulent  
7 concealment and consumer expectations, I think it's  
8 relevant. Objection overruled.

9 (Whereupon, the bench conference is  
10 concluded.)

11 Q. BY MR. WILNER: When did you first  
12 obtain -- You said you didn't have good  
13 quantification in the 50s. When did you first  
14 figure out how much polyaromatic hydrocarbon you  
15 had in the Winston?

16 A. I think that's a mischaracterization of  
17 what I said. I said in 1950 there wasn't a  
18 quantitation of benzopyrene in cigarette smoke.

19 We at Reynolds quantitated levels. We  
20 talked about that yesterday or the day before -- I  
21 can't remember now -- about how we separated using  
22 large columns and determined the levels. We  
23 identified it was there to determine the levels.  
24 Other scientists in the industry and also  
25 scientists outside the industry quantitated levels

06059

1 of benzopyrene that was published in the scientific  
2 literature in the 50s.

3 Q. And, in fact -- And I believe we have  
4 marked into evidence in this case publications or  
5 rather internal memoranda by Reynolds scientists on  
6 the analysis of cigarette smoke condensate that  
7 occurred in 1956 and thereabouts, not only 1956 but  
8 including 1956, correct?

9 A. If you'll show me a document, I'll be  
10 glad to answer your questions.

11 Q. All right. We're going to drop all these  
12 things in a minute. So give me a second here.  
13 I'll show you this in a minute because I'm going to  
14 drop all these if I'm not careful.

15 But what I want to ask you is in  
16 general -- And then I'll find out when I can get it  
17 organized. In general, Reynolds' scientists  
18 conducted experiments in the 1950s, predominantly  
19 Dr. Allen Rodgman, and analyzed the smoke  
20 constituents of their cigarettes and found  
21 polyaromatic hydrocarbons in that smoke, correct?

22 A. Reynolds' scientists, in fact, found a  
23 number of polycyclic aromatic hydrocarbons in  
24 cigarette smoke. It wasn't predominantly  
25 Dr. Rodgman. There was a number of other people

06060

1 like Lawrence Cook, Joe Schumacher and scientists  
2 outside of Reynolds did the same thing.

3 Q. Scientists outside of Reynolds found them  
4 in Winstons and Salems and Camels?

5 A. They found them in a variety of  
6 cigarettes.

7 Q. Well, did they identify them when they  
8 wrote about them and said, "This is Winston, this  
9 is Salem, this is Camel"?

10 A. Well, there were a variety of cigarettes  
11 looked at. We at Reynolds, of course, were looking  
12 at Winston cigarettes because we made those.

13 Q. Well, I'm trying to get at where someone  
14 would find out what's in a Winston and a Salem, not  
15 just in general. But if they were trying to decide

16 between one brand and another, how would they find  
17 out?

18 THE COURT: Excuse me.

19 MR. JAMES JOHNSON: Same grounds as the  
20 prior objection, Your Honor. I think it's clear  
21 this time.

22 THE COURT: Overruled.

23 THE WITNESS: I've told this court and  
24 this jury the levels of benzopyrene in Winston  
25 cigarettes at several different points in time and

06061

1 also additional styles of Winston, Winston lights  
2 and Winston Ultra Lights. If a consumer wanted to  
3 know, there's absolutely no reason we wouldn't tell  
4 them. Ask the question.

5 Q. Okay. Ask the question. Well, all  
6 right. Let me go on.

7 Let's go to NNK, which is just  
8 abbreviated here NNK. Now, you know what NNK is,  
9 don't you?

10 A. That looks like NNN --

11 MR. WILNER: Do you want to blow that  
12 up?

13 THE WITNESS: That looks like NNN to me,  
14 sir.

15 Q. BY MR. WILNER: Well, you read it then.

16 A. What page are we on?

17 Q. 94. There is both. In fact, cigarettes  
18 have both the tobacco-specific, organ-specific  
19 carcinogens NNN and NNK, correct?

20 A. Okay. I was looking at the NNN. NNN and  
21 NNK are constituents present in cigarette smoke,  
22 sure.

23 Q. Sure. NNN is nitrosonornicotine,  
24 correct?

25 A. That's correct.

06062

1 Q. NNK has a longer name. It's a butane of  
2 some kind?

3 A. That's correct.

4 Q. And NNK is listed as an organ -- Under  
5 causative agents, organ lung, NNK. NNN is listed  
6 as a cause of esophageal, pancreatic cancer. And  
7 NNN and NNK are both listed under cancer of the  
8 oral cavity. You concur so far?

9 A. Do I concur what, that those are  
10 constituents that cause those diseases?

11 Q. Yeah.

12 A. I don't know.

13 Q. Now, wait. I thought that this was your  
14 area.

15 A. Chemistry is my area. Whether  
16 those -- Whether those constituents caused those  
17 diseases -- I'm not a biologist or a medical  
18 scientist.

19 Q. So when you deal with those -- these  
20 chemicals in cigarette smoke, do you assume they  
21 cause these diseases?

22 A. As a chemist, as a cigarette designer, I  
23 assume they're bad no matter what because those are  
24 the theories that have been advanced. And my job  
25 is to reduce or eliminate them.

06063

1 Q. Okay. So, now, let's go and see exactly  
2 how -- I'm sorry. I won't say anything, just ask  
3 questions.

4 All right. Now, you have  
5 identified -- Okay. Wait. Let me follow up.

6 So you said your job is to reduce or  
7 eliminate NNK and NNN and other tobacco-specific  
8 nitrosamines, correct?

9 A. That's one of our objectives, sure.

10 Q. Okay. Now, first let's see if we agree  
11 on a few things. The tobacco-specific nitrosamines  
12 in which NNN and NNK are a family of chemicals like  
13 the PAHs were a family of chemicals with  
14 differences or let's say minor differences in their  
15 chemical structure?

16 A. Well, I wouldn't say minor. I think  
17 there are substantial differences in the chemical  
18 structure. They're all nitrosamines, which puts  
19 them into that one family that you're talking  
20 about.

21 Q. Okay. I didn't want to quibble with  
22 you. So let's get the chemical structure of them.  
23 And would you refer, please, to the article by  
24 Hoffmann and Hoffmann in your materials. I think  
25 it's in your materials. Do you see those

06064

1 notebooks?

2 A. Sure.

3 Q. Yeah. Would you refer to those?

4 A. Which tab, sir?

5 Q. Well, didn't you put together the  
6 notebooks?

7 A. The Hoffmann and Hoffmann I don't recall  
8 seeing in there.

9 Q. Well, why don't you take a look? Didn't  
10 you put together the tabs?

11 THE COURT: Well, why don't we handle it  
12 this way: Pass that book.

13 MR. WILNER: We have a copy. So I'll dig  
14 out our copy and tell him the tab if he doesn't  
15 know it.

16 THE COURT: Thank you, sir.

17 Q. BY MR. WILNER: 19 or rather 37. How  
18 about that?

19 A. Tab 37?

20 Q. Yeah. It says here.

21 A. I've got an exhibit showing the Eclipse  
22 cigarette.

23 Q. Well, look at ours then. That's 35 in  
24 the list I was given. I've got another copy if you  
25 want. You know what article I'm talking about,

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1 though, don't you?

2 A. I know which article you're talking  
3 about, of course.

4 Q. Of course. "The Changing Cigarette,"  
5 1950 to 1995, by Hoffmann -- Dietrich Hoffmann and  
6 Elsa Hoffmann (phonetic).

7 Let me hand you, then, what was given to  
8 us as your tab, as your papers.

9 THE COURT: Now, is that the article now  
10 that you're going to hand him?

11 MR. WILNER: Yes, Your Honor. Right

12 here. Thank you.  
13 Q. BY MR. WILNER: Tab 37.  
14 A. I'm there.  
15 Q. Have it now?  
16 A. Yes. Thank you.  
17 Q. Okay. Now, tell us again. In your  
18 direct testimony you talked about Dr. Hoffmann and  
19 Dr. Wynder. So let me -- And I'll try to speed  
20 this along because we're trying to get you out of  
21 here.  
22 But just to recap -- And just tell me if  
23 you agree or disagree. Ernest Wynder was a man who  
24 in 1950 published the landmark epidemiology on  
25 cigarette smoking and disease first, right?

06066

1 A. That's correct.  
2 Q. Then he went on in 1953 and published the  
3 famous mouse painting study, true?  
4 A. That's right.  
5 Q. Then he was at Sloan Kettering or -- He  
6 was at Sloan Kettering. And he stayed at  
7 Sloan Kettering for a long time doing work on  
8 cigarettes and disease, true?  
9 A. No. I believe he was at Washington  
10 University when he did the mouse skin painting  
11 studies.  
12 Q. Thank you. I'm just trying to speed  
13 this -- I'm not trying to quibble with you.  
14 A. Well, I'm not either.  
15 Q. Okay. All right. Then he went to Sloan  
16 Kettering and was there for a while, right, quite a  
17 while?  
18 A. That's right.  
19 Q. And then he was one of the cofounders of  
20 the American Health Foundation, which is in  
21 Valhalla, New York, which is outside of New York  
22 City, true?  
23 A. That's right.  
24 Q. And he and Dietrich Hoffmann really are  
25 the two founders of that organization, and they

06067

1 have done tobacco-related work for years and years  
2 and years, correct?  
3 A. I would say throughout the majority of  
4 their careers.  
5 Q. And, in fact, in your materials -- And  
6 I'll ask you again -- or not again. But you've  
7 listed a book called Tobacco and Tobacco Smoke,  
8 Studies in Experimental Carcinogenesis, by  
9 Ernest Wynder and Dietrich Hoffmann, correct?  
10 A. Yes. I've listed Tobacco and Tobacco  
11 Smoke as a reference. And I've referred to it in  
12 my direct testimony.  
13 Q. Sure. And didn't you include that book  
14 in your materials?  
15 A. The Wynder and Hoffmann book on Tobacco  
16 and Tobacco Smoke is a desk reference that we  
17 scientists in the industry use frequently.  
18 Q. Okay.  
19 A. Even though it's quite old.  
20 Q. I'm not disagreeing with you. I'm just  
21 saying -- I just want to make sure we all get it  
22 straight. So is this in your materials, the

23 Tobacco and Tobacco Smoke, the book? Is it in  
24 those notebooks?  
25 A. The entire book? I believe it is.  
06068  
1 Q. Okay. Fine. So -- All right. So, now,  
2 this is the paper. And the book was written in  
3 1968, correct? The book, not the paper. The  
4 book. I'm not trying to be confusing. I'm just  
5 doing the best I can. Okay.  
6 A. The book was written in 67 or 68. I  
7 can't recall exactly.  
8 Q. All right. And the paper we now have was  
9 written in 1996, correct?  
10 A. It says, "Received February 1996."  
11 Q. Published in 1997?  
12 A. That's right.  
13 Q. Okay. So let's turn to page 318.  
14 A. Okay.  
15 Q. And this is what I meant when I was  
16 asking you about the tobacco-specific  
17 nitrosamines. Isn't this the chemical structure of  
18 the tobacco -- can't speak -- the tobacco-specific  
19 nitrosamines that Hoffmann describes in this  
20 paper?  
21 A. What this figure is is his description of  
22 how tobacco-specific nitrosamines are likely formed  
23 in tobacco.  
24 Q. And the important part here, I suggest to  
25 you, you agree or disagree, is that one of the

06069  
1 sources of the tobacco-specific  
2 nitrosamines -- which we've learned from the  
3 Surgeon General report just now are implicated in  
4 lung cancer -- is nicotine, correct?  
5 A. No question about it. Tobacco-specific  
6 nitrosamines come from the nitrosation of nicotine  
7 or degraded nicotine molecules.  
8 Q. Okay. So one of the hazards of  
9 cigarettes or one of the reasons that nicotine and  
10 cigarettes is hazardous is because it produces the  
11 tobacco-specific nitrosamines, including NNN and  
12 NNK. Here's NNN. And -- There's NNN,  
13 nitrosonornicotine. And there's NNK, right?  
14 A. The nitrosamine theory -- The  
15 tobacco-specific nitrosamine theory is an important  
16 one. And it's being examined and evaluated to  
17 determine whether nitrosamines are important and  
18 why cigarette smoking is a risk. It's an important  
19 theory.  
20 Q. So it's being examined still?  
21 A. Absolutely.  
22 Q. All right.  
23 A. And, in fact, Dr. Hoffmann has published  
24 more recent papers on this same subject. He's  
25 published a whole series. I personally have had

06070  
1 many meetings with Dr. Hoffmann and knowing very  
2 well they have and ongoing scientific outline.  
3 Q. Well, we'll -- I'm going to talk about  
4 specifically what Dr. Hoffmann says. But certainly  
5 this concern that tobacco-specific nitrosamines  
6 were generated by nicotine and were organ-specific  
7 lung cancer -- especially NNK was a powerful lung

8 carcinogen, has been stated by Dr. Hoffmann and  
9 others for quite some time now; is that correct?  
10 A. I think Dr. Hoffmann has concluded that  
11 particularly NNK is a carcinogen.  
12 Q. Okay.  
13 A. IARC has it on the 2-A list, I believe,  
14 presently, which means that they think it's a  
15 probable carcinogen.  
16 Q. And, in fact, you mentioned the Banbury  
17 Report, remember?  
18 A. Right.  
19 Q. And that's at Tab Number 12 in your  
20 material, correct?  
21 A. Is it Tab Number 12?  
22 Q. Well, I don't know who put the tabs  
23 together. But you talked about it, right?  
24 A. I talked about the Banbury --  
25 Q. That was dated 1980, true?

06071

1 A. Yes. The conference was in 1979. The  
2 proceedings was published in 1980.  
3 Q. So, in fact, Hoffmann and his partner  
4 Heck (phonetic), who also worked at AHF for a while  
5 and now is at another institution, Steven Heck,  
6 published in 1980 "The Role of Volatile and  
7 Nonvolatile and Nitrosamines in Tobacco  
8 Carcinogenesis" at the Banbury conference, right?  
9 A. That has been discussion at Banbury.  
10 Q. And they said at that paper that NNN and  
11 NNK were likely to be powerful human carcinogens,  
12 correct?  
13 A. We can go back and look at it. I think  
14 in a general sense Dr. Hoffmann has advanced this  
15 theory. And, in fact, he's been the major  
16 proponent for the nitrosamine theory.  
17 Q. Okay. And you certainly haven't proved  
18 him wrong, have you?  
19 A. No, I haven't. But I have gone about  
20 trying to reduce or eliminate nitrosamines in  
21 smoke.  
22 Q. All right. We'll talk about that in a  
23 minute. And, in fact, when Hoffmann was asked in  
24 the proceedings -- and I'll cite you to page 126 of  
25 the Banbury Report if you would like. When

06072

1 Hoffmann was asked --  
2 A. Excuse me. What tab is it?  
3 Q. Well, according to the tabs I have, it's  
4 Tab 12.  
5 A. Okay.  
6 Q. Okay?  
7 A. What page?  
8 Q. Look at page 126 and 127.  
9 A. Okay.  
10 Q. And Hoffmann, in fact, says, beginning on  
11 the bottom of page 126, says: "90 percent of all  
12 U.S. cigarettes have cellulose acetate filter  
13 tips. These are capable of selectively removing  
14 the volatile nitrosamines in smoke up to  
15 85 percent. In that respect there would be two  
16 ways to reduce tobacco-specific carcinogens. First  
17 is selected filtration. And preliminary data in  
18 this area appear quite promising. A second

19 approach would be to keep the alkaloids low in the  
20 tobacco because without the alkaloids these  
21 nitrosamines cannot be formed."  
22 And then it goes on to say -- That was  
23 just my lead-in. Then he goes on to say: "This is  
24 why we're very much opposed to the introduction of  
25 low tar, high-nicotine cigarettes. One thing we

06073

1 are sure of is when you have a high alkaloid  
2 content in tobacco" --

3 And, incidentally, nicotine is an  
4 alkaloid, right?

5 A. Sure.

6 Q. "You have a high yield of  
7 tobacco-specific carcinogens in the tobacco and in  
8 the smoke. Thus the suggestion of low tar,  
9 high-nicotine cigarettes as discussed in the  
10 United Kingdom is counterproductive because the  
11 higher levels of nicotine in the smoke will  
12 continue to support habituation of smokers and will  
13 also result in higher nitrosamine content of the  
14 smoke unless methods for their selected filtration  
15 are found."

16 Do you agree that Hoffmann said this?

17 A. That is what Hoffmann said in this  
18 document, sure.

19 Q. All right. Now, let me see if I get you  
20 straight. When you were talking before about this  
21 idea of keeping the nicotine up and dropping the  
22 tar, you were aware that Hoffmann said back in 1980  
23 prophetically, "Don't do it because when you keep  
24 the nicotine up you generate these tobacco-specific  
25 nitrosamines"?

06074

1 A. I'm aware that he said this at this  
2 point. I know that he's since talked about the  
3 virtues of going to lower-tar cigarettes and, in  
4 fact, critiqued the Russell hypothesis.

5 Q. Well, wasn't he critiquing the Russell  
6 hypothesis right here?

7 A. He was.

8 Q. Okay.

9 A. And because of his focus on  
10 tobacco-specific nitrosamines, he was questioning  
11 the wisdom in doing that, which again is exactly  
12 the point about conflicting theories.

13 Q. Did Reynolds agree with Hoffmann at this  
14 time?

15 A. It made sense -- Well, I don't know  
16 whether Reynolds' scientists agreed or any  
17 scientists agreed with it.

18 Q. If you don't know, that's fine. I want  
19 to try and speed this up. If you don't know,  
20 that's okay.

21 Let's look at the next article, page 129  
22 of your Banbury Report by Fred Bock. Do you  
23 remember who he was?

24 A. Sure.

25 Q. Fred Bock, in fact, was one of the people

06075

1 who put together the Banbury conference, correct?

2 A. That's right.

3 Q. And he writes on page 129, "Carcinogenic

4 properties of nicotine," right?  
5 A. I think a number of people have looked at  
6 nicotine to see if it's carcinogenic.  
7 Q. Yeah. Is it?  
8 A. I think the answer or the consensus is  
9 that it's probably not.  
10 Q. Only it generates the tobacco-specific  
11 nitrosamines which are, right?  
12 A. Tobacco-specific nitrosamines are formed  
13 from nicotine and from nicotine degradation  
14 products. We also talked yesterday about why  
15 Hoffmann in particular came full circle and Wynder  
16 and recommended against using nitrates as a tobacco  
17 additive because they were worried about increasing  
18 nitrosamine levels.  
19 Q. Now, you say that you've -- you  
20 collectively, you -- have reduced the levels of the  
21 tobacco-specific nitrosamines in cigarettes. Did  
22 you say that?  
23 A. We have. If you look at tobacco-specific  
24 nitrosamines, they pretty much -- the levels pretty  
25 much track the tar level. So the concentration of

06076

1 nitrosamines were given an American blended  
2 cigarette, is pretty much the same in the particles  
3 in the particulate phase. So if you reduce tar,  
4 you more or less reduce nitrosamines,  
5 tobacco-specific nitrosamines to the same degree.  
6 Q. Now, would you look, then, at page 353 of  
7 Hoffmann and Hoffmann, 1995.  
8 A. Okay. That is in your yellow binder?  
9 And what tab is that, sir?  
10 Q. Well, it was your 37, as I remember.  
11 A. I've got it here.  
12 Q. Well, incidentally, let me ask you, did  
13 you put together these books or did someone else?  
14 A. I went through these articles. I've been  
15 through many, many more articles. If you're asking  
16 me did I physically put these and assign tabs to  
17 it, no, of course not. But these are articles that  
18 I rely on.  
19 Q. All right. I'm just curious because in  
20 the list that we got, this article is listed as one  
21 of the articles that you would be entering into  
22 evidence, and then it didn't show up in your  
23 books. Did you pull it out or what?  
24 A. Did I pull it out?  
25 Q. Yeah.

06077

1 A. No.  
2 Q. Well, do you know who did?  
3 A. No. We decided, you know, in -- We  
4 decided to try to keep --  
5 Q. Whatever.  
6 A. Try to keep --  
7 Q. That's all right.  
8 MR. JAMES JOHNSON: Let him finish his  
9 answer, Your Honor.  
10 THE COURT: Allow the witness --  
11 MR. WILNER: I'm sorry.  
12 THE WITNESS: In trying to decide what to  
13 present to this jury, one of the decisions we made  
14 was to try to keep this a streamlined direct



15 testimony to make the important points and not go  
16 through a lot of extra material unless you care to  
17 question them.

18 Q. Well, you didn't go through half the  
19 materials in those two binders?

20 A. That's exactly my point, sir.

21 Q. So why did you pull it out of your  
22 binders?

23 A. Why did I pull this particular --

24 Q. Why did anyone pull it out?

25 A. Because we streamlined our direct not to  
06078

1 bore the jury, not to bore the Court but to get  
2 right to the point of what we have done and --

3 Q. All right. Well, let's look at  
4 page 353. Now, does Hoffmann agree that levels of  
5 these tobacco-specific nitrosamines are actually  
6 going down?

7 A. Page what?

8 Q. 353.

9 A. Okay.

10 Q. All right. Let me show you the graph on  
11 page 353. The graph. Thank you.

12 A. Right. Okay.

13 Q. Okay. And this says BaP. It's got two  
14 lines. One is for BaP, which is one of the -- one  
15 of the polycyclic aromatic hydrocarbons we talked  
16 about. And you testified that that went down,  
17 right?

18 A. Right.

19 Q. It looks sort of flat from about 1972,  
20 around here. It doesn't look like it's gone down  
21 that much. Do you disagree with this data?

22 A. Well, in general, what Dr. Hoffmann here  
23 has looked at is one product. But I've made it  
24 clear, I hope, is that the overall tar of the  
25 market has gone down. BaP has gone down pretty

06079

1 much proportional to the tar level. We talked  
2 about that. And, in fact, that he even gave  
3 numbers for different types of products.

4 Q. Okay. And then it shows the line for  
5 NNK?

6 A. Right.

7 Q. See that?

8 A. Right.

9 Q. Beginning -- It looks like they started  
10 measuring it in 1970, I don't know, eight or  
11 something.

12 A. Right.

13 Q. There it is. And then it goes up. It  
14 goes down a little. It goes up, up, up. 1995,  
15 much more of the NNK carcinogen than earlier. Now,  
16 why is that?

17 A. Well, that is, in fact, one of the center  
18 points of Dr. Hoffmann's theory. We've discussed  
19 it with Dr. Hoffmann. We've gone back and done our  
20 own analysis of historical products. We don't see  
21 nitrosamines going up. In fact, we see overall  
22 that nitrosamines are relatively constant for a  
23 given level of tar.

24 Dr. Hoffmann goes on to speculate that,  
25 for example, the reason the nitrosamines have gone

06080

1 up is because the industry has increased the level  
2 of Burley tobacco in their cigarettes. That has  
3 more nicotine and more nitrosamines.

4 We've gone back through our historical  
5 data to see if that's true. And it's not true. We  
6 can't find evidence that that's occurred from our  
7 own historical data. We've talked with  
8 Dr. Hoffmann about this. But this is still his  
9 theory.

10 Q. So the person, now, that you were talking  
11 about, the outside scientists that have done more  
12 work than anybody else in the field, he just  
13 doesn't have it straight at all about what kind of  
14 tobacco you use?

15 A. In his theory about increasing Burley,  
16 that's absolutely right. He's --

17 Q. Well -- Go ahead.

18 A. That's it.

19 Q. Well, I mean, so what you're saying is  
20 that nobody but the people inside the industry know  
21 what's really in the cigarettes?

22 A. No. I'm not saying that at all. I mean,  
23 he can evaluate and try to determine from picking  
24 apart blends to at least the first approximation  
25 and determine what the Burley and flue-cured levels

06081

1 are. I'm telling you from our own blend  
2 compensation data internally I don't think he's  
3 right. You know, and what he's got here is  
4 analysis of nitrosamine levels that show an  
5 increase over the years. Our data on commercial  
6 products don't show that.

7 Q. Where is your data on commercial  
8 products? Has it ever been published?

9 A. We've published nitrosamine data on a  
10 number of products, including Premier and Eclipse.

11 Q. Well, I'll get to the Premier.

12 A. And there are reference products that are  
13 evaluated with it.

14 Q. I'll get to the Premier.

15 A. Okay.

16 Q. That was 1988, right?

17 A. Okay.

18 Q. Right. Before you published the Premier  
19 stuff, where are the published data on the Winston?

20 A. For nitrosamines?

21 Q. Sure.

22 A. We've measured nitrosamine levels for  
23 Winston. I'm not aware that we published them in  
24 the scientific literature.

25 Q. Well, why not?

06082

1 A. What does it add to the scientific  
2 literature?

3 Q. Well, if Hoffmann is wrong, then isn't  
4 that the way you do science? You publish. And you  
5 say, "This is what we have proven; and therefore  
6 you need to look at this"? You don't keep it a  
7 secret?

8 A. No. We don't keep it a secret. And, in  
9 fact, that's exactly why we've been talking to  
10 Dr. Hoffmann about his theory. We have an ongoing

11 dialogue with him because he is a reasonable  
12 scientist.  
13 Q. You mean, the way you conduct this is by  
14 going to see Dr. Hoffmann in private?  
15 A. And talking with him in meetings. We  
16 have had private meetings. We've had discussions  
17 as we get together at scientific -- scientific  
18 conferences. This is an ongoing scientific process  
19 of exchanging ideas, and we do that. And he has  
20 done that as well.  
21 Q. In private? True?  
22 A. Scientists discuss the results of their  
23 work among one another. That's what we've been  
24 doing.  
25 Q. Well, where would a consumer go to find

06083

1 out if Winston or Camel or Kools had more of these  
2 tobacco-specific nitrosamines that cause lung  
3 cancer? Where would they get that information?  
4 A. I think if a consumer really wanted to  
5 know the level of nitrosamine in a product that we  
6 made, we would tell them that.  
7 Q. Okay. That's the only source right now,  
8 isn't it?  
9 A. We analyze our products for the variety  
10 of constituents. If a consumer wants to know the  
11 level, I don't see a reason why not to tell them,  
12 the consumer the level. I would do it. I've told  
13 this jury what the levels of a number of things  
14 are.  
15 Q. I'm sorry. I guess I didn't ask it very  
16 clearly. I said that would be the only source  
17 would be you, wouldn't it?  
18 A. Dr. Hoffmann has analyzed commercial  
19 products --  
20 THE COURT: Excuse me, please.  
21 MR. JAMES JOHNSON: Your Honor, this has  
22 been asked and answered. It also relates --  
23 THE COURT: Sustained.  
24 Q. BY MR. WILNER: Okay. Now, in fact, the  
25 rise in the tobacco-specific nitrosamines has

06084

1 paralleled -- Well, wait. Before I ask you that,  
2 let me lead up to it.  
3 Lung cancer can be classified into four  
4 basic cell types. You're aware of that just as a  
5 basic idea, right?  
6 A. I'm aware that there are different types  
7 of lung cancer.  
8 Q. Okay. There are -- There's what's called  
9 squamous cell, small cell, large cell and something  
10 called adenocarcinoma. Are you aware of that?  
11 A. I am aware of that.  
12 Q. Okay. And you're aware -- or maybe  
13 you're not aware that over the past 30 years there  
14 has been an increase in the amount of  
15 adenocarcinoma, not only because there's been an  
16 increase in lung cancer, but in proportion to the  
17 other kinds of lung cancer, adenocarcinoma has shot  
18 up, both men and women. Do you know that?  
19 A. I've heard that. And, in fact,  
20 Dr. Hoffmann speaks to it in a number of his papers  
21 dealing with this nitrosamine theory because he's

22 suggesting that the increase in the nitrosamines,  
23 which we haven't seen -- But he feels that the  
24 nitrosamine increase has resulted in a shift of  
25 cancer types from squamous cell to adenocarcinoma.

06085

1 That's his theory.

2 Q. In fact, not just a shift but an epidemic  
3 of adenocarcinomas, right?

4 A. Well, I've said it the way I understand  
5 it from the scientific papers, that there's been a  
6 shift in lung cancer types. Whether that shift is  
7 an accurate reflection of the real world, I don't  
8 know, again, because I'm not an epidemiologist.  
9 But that's one of the center points of his theory.

10 Q. Again, and now you're saying it's just  
11 Wynder and Hoffmann's theory?

12 A. Dr. Hoffmann, in fact, is the prime mover  
13 for this theory. He's the one that's devoted the  
14 last 20 years mainly focused on nitrosamines and  
15 particularly tobacco-specific nitrosamines. He's  
16 the main proponent for this theory, surely.

17 Q. If, in fact -- If, in fact, it is true,  
18 as Hoffmann says, that tobacco-specific  
19 nitrosamines are up, and if it is also true that  
20 tobacco-specific nitrosamines are related to  
21 adenocarcinoma, and it's also true that  
22 adenocarcinoma is up in males and females, what are  
23 the implications to you?

24 A. Well, I think the implications of  
25 Dr. Hoffmann is that they're related.

06086

1 Again, I've already said, our evaluation  
2 of historical data doesn't agree with your first  
3 "if" statement. We don't see nitrosamine levels  
4 going up historically in the commercial products.  
5 What we see is the level pretty much constant for a  
6 given tar level. And, in fact, what's happened is  
7 the markets moved to lower tar levels, so the  
8 overall yield on a sales-weighted average is less.

9 Q. Well, let's take a look and see a little  
10 bit more specifically. Are you familiar with the  
11 paper called lung cancer -- I mean, "Smoking and  
12 Lung Cancer: Scientific Challenges and  
13 Opportunity," by both Wynder and Hoffmann?

14 Maybe I'll give you a copy of it. Let me  
15 hand you this copy.

16 MR. JAMES JOHNSON: May I see it?

17 Q. BY MR. WILNER: Is that the same Wynder  
18 and Hoffmann whose book in 1968 you talked about?

19 A. Sure.

20 Q. Okay. And then you -- And so you're  
21 familiar with that. That's a 1994 piece, right?

22 A. I have been through this article.

23 Q. Okay. Thank you.

24 Okay. So let's see if we agree or  
25 disagree on a couple things. First, on page 5284

06087

1 they talk about an increase in adenocarcinoma of  
2 the lung. Do you see that?

3 MR. JAMES JOHNSON: Your Honor, I don't  
4 believe the document is in evidence.

5 THE COURT: All right.

6 MR. WILNER: We move it in.

7 THE COURT: Well, without a foundation I  
8 would have to deny that. But we'll come back to it  
9 after we take a ten-minute break.  
10 (Whereupon, the jurors were excused from  
11 the courtroom.)  
12 (Whereupon, a ten-minute recess was taken  
13 at 11:26 a.m.)  
14 (Out of the presence of the jury.)  
15 THE COURT: All right.  
16 MR. JAMES JOHNSON: Your Honor, we were  
17 at the place where Mr. Wilner had offered a learned  
18 treatise, scientific article in evidence. And  
19 perhaps it's appropriate before the jury comes in  
20 to decide that question now. I would point out to  
21 the Court Rule 618 of the Rules of Evidence, which  
22 basically provides that learned treatises used on  
23 impeachment may not be received as substantive  
24 evidence.  
25 There is, in addition, Your Honor, a  
06088  
1 specific sentence in Professor Paine's book that  
2 says that a learned treatise used for impeachment,  
3 according to Rule 618, may not be received as  
4 substantive evidence and should not be received as  
5 an exhibit.  
6 THE COURT: All right. What do you say  
7 on that, Mr. Wilner?  
8 MR. WILNER: I would like to say it  
9 outside of his ears.  
10 THE COURT: All right. Dr. Townsend,  
11 would you wait outside just a minute?  
12 THE WITNESS: Yes, Your Honor.  
13 THE COURT: All right. Mr. Wilner, we'll  
14 hear from you, sir.  
15 MR. WILNER: Waiver by the plaintiffs  
16 putting in the book authored by the same people ten  
17 years earlier as a learned treatise in their case.  
18 Here's "Tobacco and Tobacco Smoke, Studies in  
19 Experimental Carcinogenesis," exactly the same  
20 author, exactly the same subject, ten years earlier  
21 in their case in evidence. Waiver of any  
22 publication on exactly the same issues by exactly  
23 the same people, so long as the witness agrees it's  
24 an authoritative publication and it's well  
25 authenticated.  
06089  
1 May I pass this up to the Court?  
2 THE COURT: Well, before you pass it up,  
3 let me --  
4 What do you say on that, Mr. Johnson?  
5 MR. JAMES JOHNSON: Your Honor, there was  
6 no objection to anything we presented through  
7 Dr. Townsend. There is no waiver. I'm not aware  
8 of any sort of a waiver rule. Moreover, there is  
9 no Tennessee exception in the hearsay rule for  
10 learned treatises. They're dealt with very  
11 specifically by Rule 618.  
12 THE COURT: Well, you have to show me,  
13 Mr. Wilner, where the -- I understand what you're  
14 saying. So if this is about a 618 issue, then what  
15 rule of evidence allows its admission, I guess,  
16 would be my next question?  
17 MR. WILNER: The Rules of Evidence,

18 Your Honor, have at their basis the concepts of law  
19 that include --

20 THE COURT: Well, I understand what the  
21 Rules of Evidence has as its basis. But I'm just  
22 talking about what specific rule can we look to,  
23 since there is an objection raised, that would  
24 guide me to a decision outside of a general rule?

25 MR. WILNER: Our position is, Your Honor,  
06090

1 we don't need to reach that since they're estopped  
2 from objecting by the virtue of their own actions.  
3 A party cannot put in evidence a learned treatise  
4 and then object when the next edition, so to speak,  
5 of that learned treatise is offered by the other  
6 side.

7 The doctrine of completeness alone would  
8 suggest that whatever is offered by one party may  
9 be completed by another party. But I think they're  
10 estopped to object. I think their objection is in  
11 bad faith, should be recognized as such.

12 How can you put into evidence something  
13 which is a learned treatise and then say, "We  
14 object," when the same version of the learned  
15 treatise only a different date is put in. It  
16 defies belief that someone could in good faith make  
17 that objection.

18 So we would say the objection is not in  
19 good faith, should be disregarded and beyond that  
20 we don't need to consider it.

21 THE COURT: Well, that's very good for  
22 argument, but that doesn't get me very far. I  
23 understand the analysis that you're proposing. But  
24 I don't think that invites me to -- or opens the  
25 way for me to disregard Rule 618.

06091

1 Again, if there's some other rule that  
2 might give us some guidance, fine. Otherwise, I  
3 would have to sustain Mr. Johnson's objection.

4 MR. WILNER: Well, so that we're clear,  
5 then, we'll read from the exhibit under 618. But  
6 we won't show it on the monitor so we don't draw  
7 any more objections if we don't need to. We will  
8 read from the exhibit under 618.

9 MR. JAMES JOHNSON: Your Honor, I think  
10 there is a way to use a learned treatise for  
11 impeachment, and it is not simply to step up and  
12 start reading from it. I believe that -- That's  
13 why I wanted to raise that before that last comment  
14 was left to go unchallenged.

15 THE COURT: Well, Professor Paine says:  
16 "Although there are several ways a learned  
17 treatise can be used to impeach a witness, the  
18 typical approach involves counsel reading or having  
19 the expert read the relevant portion of  
20 the" -- "the relevant portion of the treatise,  
21 asking the expert if he or she agrees with the  
22 treatise, comparing the expert's opinion with that  
23 of the author of the treatise."

24 Now, I'm assuming that that's what  
25 Mr. Wilner intends to do.

06092

1 MR. JAMES JOHNSON: Your Honor, I was  
2 assuming that Mr. Wilner simply wanted to get up

3 there and read the treatise.  
4 THE COURT: Well, that's why, for  
5 everybody's benefit, I just wanted to put this  
6 question of approach to rest by adopting the  
7 Cohen-Shepard-Paine approach.  
8 MR. JAMES JOHNSON: Yes, sir.  
9 THE COURT: All right. Are you all ready  
10 for the jury?  
11 MR. WILNER: We're ready.  
12 THE COURT: Would you see if the sheriff  
13 is outside? Let them know we're ready for the --  
14 MR. KLEIN: Do you want the witness,  
15 Your Honor?  
16 THE COURT: Yes.  
17 MR. WILNER: While we're waiting, might I  
18 inquire as to the timing purposes so not to  
19 conflict with the Court's calendar?  
20 THE COURT: 12:30. We may go five or ten  
21 minutes over but no more than that.  
22 MR. WILNER: Yes, sir.  
23 (Whereupon, the jury was seated in the  
24 jury box.)  
25 THE COURT: Thank you, ladies and

06093

1 gentlemen.  
2 Mr. Wilner, you may continue.  
3 MR. WILNER: Thank you, Your Honor.  
4 Q. BY MR. WILNER: Before we continue to  
5 discuss the tobacco-specific nitrosamines as  
6 derived from nicotine, you agree that Reynolds in  
7 its products and, as you put it, your competitors  
8 can control the amount of nicotine in a cigarette,  
9 right?  
10 A. Well, I think from a technical point of  
11 view it's possible to reduce the level of nicotine  
12 in tobacco. It's also -- We've experimented with  
13 it because of some of these theories. It's  
14 possible to increase the level of nicotine in  
15 cigarettes.  
16 Q. So when you send a Winston out to be  
17 bought, it has a specified level of nicotine that  
18 you control in your factory, right?  
19 A. No. I don't think that's a complete  
20 statement. I said it's technically possible. It  
21 turns out in commercial cigarettes the  
22 tar-to-nicotine ratio is quite sensitive to  
23 determining consumer acceptance. And in spite of  
24 all the work that we've done to try to break that  
25 ratio, there's a fairly narrow range of

06094

1 tar-to-nicotine yield that's consumer acceptable.  
2 We do have specifications, to your point,  
3 on reject limits for both tar and nicotine in  
4 products.  
5 Q. Well, I'm going to talk to you about  
6 consumer expectation, as you put it, in a minute.  
7 But I'm just talking about technically you can put  
8 whatever amount of nicotine you want?  
9 A. Technically it's possible to go in and  
10 add nicotine to cigarettes. Technically it's  
11 possible to go in and remove nicotine from  
12 cigarettes.  
13 Q. So how much nicotine does Winston have

14 today?  
15 A. The Winston full flavor that you happen  
16 to be holding, which is the higher tar product, is  
17 about 16 milligrams of tar and about 1.2, 1.3 grams  
18 of nicotine.  
19 Q. Now, let's say -- Now, how much in a  
20 Pall Mall, your competitor?  
21 A. Pall Mall is one of my competitors. I  
22 don't recall the tar or the nicotine level  
23 offhand.  
24 Q. Well, here. Let me hand you this. Thank  
25 you. How much nicotine?

06095

1 A. I said I don't recall the level offhand.  
2 Q. Well, have a look.  
3 A. Well --  
4 THE COURT: Just a minute, please.  
5 MR. JAMES JOHNSON: Objection,  
6 Your Honor. This is an attempt to get around the  
7 preemption provisions of the Labeling Act.  
8 THE COURT: Lawyers approach the bench.  
9 (Whereupon, the following discussion took  
10 place at the bench.)  
11 MR. JAMES JOHNSON: Your Honor,  
12 Mr. Wilner well knows that the labels on cigarettes  
13 do not contain tar and nicotine on the labels. He  
14 also knows that --  
15 THE COURT: Just a minute.  
16 Is that true?  
17 MR. WILNER: No. Some do, some don't.  
18 THE COURT: Well, I don't know.  
19 MR. WILNER: I don't know.  
20 THE COURT: I'm not here to play games.  
21 You passed him a Pall Mall package. Does it have  
22 tar and nicotine label on it?  
23 MR. WILNER: No. I don't think so. But  
24 I'm not sure.  
25 THE COURT: Well, I sustain the

06096

1 objection.  
2 (Whereupon, the bench conference is  
3 concluded.)  
4 THE COURT: Sheriff, let's hand the  
5 package to Mr. Wilner.  
6 Q. BY MR. WILNER: Dr. Townsend -- And  
7 before I -- I'm going to go further and talk to you  
8 some more about adenocarcinoma. But if it were,  
9 let's say, 1966 and I were a consumer concerned  
10 about -- I had found out somehow about the  
11 relationship between nicotine and cancer, maybe  
12 adenocarcinoma, and I was concerned as of 1966.  
13 How would I find out what products had the high  
14 nicotine and what products had the low nicotine?  
15 A. Well, 1966 was before the Federal Trade  
16 Commission establishment of the particular smoking  
17 method and the reporting of the tar and nicotine.  
18 There were a number of reports comparing  
19 cigarettes, both in Consumer's Reports, Consumer's  
20 Union, Reader's Digest and other places. But  
21 that's exactly what the FTC decided to do in 1967  
22 when they established the method, is provide a  
23 basis for comparison.  
24 Q. Well, did Reynolds know how to measure



25 the nicotine in Winston in 1966?

06097

1 A. Yes. There wasn't a standardized method  
2 that everyone used so that everyone used the same  
3 method. But, yes, we did.

4 Q. In 1966 what did Reynolds do to inform  
5 customers about how much nicotine was in the  
6 product?

7 MR. JAMES JOHNSON: Objection,  
8 Your Honor.

9 THE COURT: All right.

10 MR. JAMES JOHNSON: A claim that's no  
11 longer in the case, Your Honor.

12 THE COURT: Sustained.

13 Q. BY MR. WILNER: How would consumers find  
14 out, other than going to Consumer Reports about how  
15 much nicotine was in a Winston?

16 THE COURT: Excuse me. Yes, sir?

17 MR. JAMES JOHNSON: It's the same  
18 objection, Your Honor, because I think it's the  
19 same question.

20 THE COURT: Overruled.

21 THE WITNESS: I'm sorry?

22 Q. BY MR. WILNER: How would a consumer find  
23 out if they didn't happen to subscribe to Consumer  
24 Reports?

25 A. Before 1967?

06098

1 Q. Well, 1966, sure. Before 1970, let's  
2 say.

3 A. Well, I don't really know. You know,  
4 there was a standardized test methodology. There  
5 were some comparisons made in the popular  
6 literature.

7 Q. In the popular literature?

8 A. Well, Consumer Reports, Reader's Digest  
9 and the like.

10 Q. Now, did Reynolds have a -- have an  
11 opportunity to inform consumers prior to 1970?

12 THE COURT: Excuse me.

13 Sustained. Objection sustained.

14 Q. BY MR. WILNER: Dr. Townsend, remember we  
15 talked about "Smoking and Lung Cancer: Scientific  
16 Challenges and Opportunities"?

17 A. Yes.

18 Q. All right. And this is by the same  
19 Wynder and Hoffmann in 1994, the same authors that  
20 you had attached -- whose book you had attached  
21 from 1968, right?

22 A. That's right.

23 Q. Okay. Let me direct your attention to  
24 5285 and ask if you would agree or disagree with  
25 some of the statements made by Wynder and Hoffmann

06099

1 in 1994 and beginning on the first full paragraph  
2 of the left column.

3 In a study covering 7 percent of the  
4 United States population, Devesa, et al. -- who was  
5 a researcher -- reported a total of 16,288 among  
6 them 12,957 males and 3,331 females with lung  
7 cancer cases between 1969 and 71, and a total of  
8 28,183 -- and I'll omit the breakdown -- lung  
9 cancer cases between 84 and 86. During these

10 periods the incidence of SCC -- which do you  
11 recognize as small cell cancer?  
12 A. I suppose it could be.  
13 Q. Could be. Okay. And AC, do you  
14 recognize that as adenocarcinoma?  
15 A. I would -- Could be, yeah, sure.  
16 Q. Well, if you're unsure, please look at  
17 page 5284, footnote 3, which defines the  
18 abbreviations.  
19 A. That's why I flipped back there.  
20 Q. Okay. Fine. So back to this. "During  
21 the periods the incidence of small cell cancer and  
22 adenocarcinoma in white males rose by 25 percent  
23 and 111 percent respectively. In black males these  
24 increases were 50 and 151 percent respectfully. In  
25 white females these increases were 156 and 220

06100

1 percent. And in black females the  
2 increase" -- "increases were 209 percent and 221  
3 percent."  
4 Now, did --  
5 THE COURT: Excuse me, please. Let's let  
6 the -- I'll hear the question now, and then I'll  
7 hear your objection.  
8 Q. BY MR. WILNER: Now, first, did I read  
9 that correctly?  
10 THE COURT: All right. Now, excuse me,  
11 please.  
12 THE WITNESS: As far as I can tell, yes.  
13 Q. BY MR. WILNER: Okay. Now, does that  
14 refresh your recollection of whether or not  
15 Drs. Wynder and Hoffmann reported an increase in  
16 adenocarcinoma over that of other types of cancer  
17 in the period between 1969 and 71 and 1984 and 86?  
18 A. This whole paragraph appears to be a  
19 discussion of lung cancer rates, lung cancer  
20 cases. And that's what it appears to me. I don't  
21 know whether they're right or wrong.  
22 Q. Okay.  
23 A. I'm not an epidemiologist.  
24 Q. All right. So let me ask you this,  
25 continuing on.

06101

1 "The cited studies do not only document  
2 an increase in the incidence of squamous cell  
3 carcinoma of the lung among both men and women  
4 until 1986 but an even steeper rise in the  
5 occurrence of adenocarcinoma in men and lately  
6 especially in women.  
7 "In 1991 an estimated 90.3 percent of  
8 the 92,000 deaths from lung cancer in men and  
9 78 percent of the 51,000 lung cancer deaths in  
10 women were attributed to cigarette smoking."  
11 Now, let me direct your attention to the  
12 first part that I read. "An even steeper rise in  
13 adenocarcinoma in men and lately especially in  
14 women." Does that refresh your recollection about  
15 the kind of diseases that are being caused by  
16 cigarette products today?  
17 THE COURT: All right. Just a minute,  
18 please.  
19 MR. JAMES JOHNSON: Your Honor, I think  
20 we established yesterday that Dr. Townsend is not

21 an epidemiologist, and that questions directed to  
22 that specialty ought not to go forward.  
23 THE COURT: Well, I'm going to allow it.  
24 If he doesn't know -- If he doesn't have a  
25 sufficient basis to answer the question, he can say

06102

1 so.

2 MR. JAMES JOHNSON: Yes, sir.

3 THE WITNESS: I'm sorry. Can you repeat  
4 the question?

5 Q. BY MR. WILNER: Yeah. Let me ask you  
6 directly. Do you have information from any source  
7 one way or another that there's an epidemic, not  
8 only of lung cancer among men and women, but  
9 especially in women and especially adenocarcinoma?

10 A. Well, again, I don't know. I'm not an  
11 epidemiologist. There are scientists at Reynolds  
12 that are looking at this very closely. I  
13 personally don't know.

14 Q. Well, have the scientists at Reynolds  
15 gotten together with you and said, "Now, look,  
16 there is good evidence connecting tobacco-specific  
17 nitrosamines which are going up in the products  
18 that you're making that's causing an epidemic of  
19 adenocarcinoma in women"? Have they ever come to  
20 you and told you that?

21 A. We've had many discussions about  
22 Dr. Hoffmann's theory that's described in  
23 this -- in this and other scientific articles.  
24 We've talked about it with Dr. Hoffmann.

25 As I've already said, which was in your

06103

1 question, we don't see tobacco-specific  
2 nitrosamines going up in commercial products over  
3 time. What we see is a relatively constant,  
4 concentration.

5 Tobacco-specific nitrosamines reside in  
6 the particulate phase, that is, in those little  
7 particles. Those particles, to the degree that  
8 they're removed by filtration and air dilution, you  
9 reduce tobacco-specific nitrosamines about the same  
10 degree you do tar.

11 We have discussed the basis of this  
12 theory and the shifts in squamous cell to  
13 adenocarcinoma. And whether that's real or not,  
14 I'm not an expert in this area. But I do know the  
15 chemistry of cigarette smoke, and I do know  
16 cigarette design.

17 Q. Well, you say you're not an expert. So  
18 what have the experts told you? Have they said  
19 this isn't going on or it is?

20 A. Well, at least one conclusion is that  
21 it's not clear from the statistics.

22 Q. So the people at Reynolds don't accept  
23 that there's an epidemic of adenocarcinoma among  
24 men and women?

25 A. No. I don't think that's -- I don't

06104

1 think that's correct. I think that's a  
2 misstatement of what I said.

3 Q. Okay.

4 A. They're looking at it very carefully.  
5 The statistics are not clear. There have been

6 discussions with other people outside of Reynolds,  
7 including Dr. Hoffmann, about this theory.

8 Q. So they're still looking at it?

9 A. Just as Dr. Hoffmann is.

10 Q. Well, all right. Let's go on.

11 In fact, it isn't only the  
12 tobacco-specific nitrosamines that are thought to  
13 contribute to the adenocarcinoma epidemic. It's  
14 also a characteristic of the very kinds of  
15 low-delivery cigarettes that you are touting as  
16 safer, correct?

17 A. That's another portion of the theory,  
18 that low-tar cigarettes might result in increased  
19 adenocarcinoma.

20 Q. "Might." Okay. Well, let's see exactly  
21 what Drs. Hoffmann and Wynder say about this.

22 Look at page 5286 in the middle of the  
23 page. And I will begin reading on "Clearly the  
24 determining factor for the mode," which is midway  
25 through the first paragraph on the left column of

06105

1 the -- of page 5286.

2 A. Beginning with?

3 Q. Beginning with the word "clearly," or  
4 I'll start anywhere you want. But just to get out  
5 of here today, I'm going to start with "clearly."  
6 If you want me to read more, I'll read whatever you  
7 want.

8 "Clearly the determining factor for the  
9 mode in which tobacco products are used is the  
10 dependency on nicotine. To satisfy a craving for  
11 nicotine, a smoker of low-yield filtered  
12 cigarettes" -- Isn't that the kind you make today  
13 supposedly as a response to these concerns about  
14 safety?

15 A. The market has moved to lower yielding  
16 cigarettes.

17 Q. "To satisfy a craving for nicotine, a  
18 smoker of low-yield filtered cigarettes smokes  
19 usually far more intensely, often taking up to five  
20 puffs per minute with up to 55 millimeters a puff,  
21 while the duration of puff were" -- "puff drawing  
22 remains close to two seconds. Thus the velocity of  
23 the smoke drawn through the cigarette is  
24 accelerated."

25 And let me keep reading because my

06106

1 questions will concern all of these.

2 "The more nicotine dependent cigarette  
3 smokers are, the more likely they will compensate  
4 for changes in the nicotine delivery for each  
5 cigarette by modifying the manner in which they  
6 smoke.

7 "When a machine is programmed to  
8 simulate the smoking parameters of a filtered  
9 cigarette smoker, the smoke yields per cigarette  
10 increase two to threefold for tar, nicotine and  
11 carbon monoxide and also for most known tobacco  
12 smoke carcinogens."

13 Now, are you aware of the research that  
14 is shown that when you calibrate the machine for  
15 these filtered low-yield cigarettes, that it comes  
16 out with two to three times what you're publishing?

17 A. The Federal Trade Commission method is a  
18 standardized method that smokes cigarettes so that  
19 results can be compared. Humans smoke  
20 differently. And there's a wide range of smoking  
21 behavior.

22 Q. I understand. But that wasn't my  
23 question. My question was that the machine, the  
24 FTC machine was calibrated for the old nonfiltered  
25 cigarettes, right?

06107

1 A. No. I don't think that was right because  
2 in the 1967 time period when this was established  
3 by the Federal Trade Commission there was a very  
4 high proportion of filtered cigarettes on the  
5 market.

6 Q. All right. Let me just ask you then to  
7 agree or disagree with this, precisely as stated by  
8 Drs. Wynder and Hoffmann. "When a machine is  
9 programmed to simulate the smoking parameters of a  
10 filtered cigarette smoker, the smoke yields per  
11 cigarette increase two to threefold for tar  
12 nicotine and carbon monoxide." Do you agree or  
13 disagree exactly with that statement? Or can you  
14 say?

15 A. I can say, actually. And the very clear  
16 answer is that smokers smoke differently. Among  
17 smokers, even one smoker smokes differently. And,  
18 yes, there are some smokers, particularly at  
19 certain times, that may smoke to get a two to  
20 threefold increase in tar. Other smokers, or if  
21 the same smoker, at different times get different  
22 values that are less. There's a wide range of  
23 human smoking to --

24 Q. A two to threefold increase for tar and  
25 nicotine and carcinogens would wipe out this tar

06108

1 reduction that you keep talking about, wouldn't it?

2 A. No.

3 Q. Okay. Let me go on. There's lack  
4 of -- "While there is lack of accurate  
5 measurements, there is evidence to suggest that the  
6 smoker of low-nicotine cigarettes also inhales more  
7 deeply than the smoker of plain cigarettes. This  
8 is supported by observation of more intense smoking  
9 patterns among consumers of low-yield filtered  
10 cigarettes. As a result, the bronchioloalveolar  
11 regions and the smaller bronchi of the smokers of  
12 low-yield cigarettes are exposed to  
13 disproportionately higher amounts of certain smoke  
14 constituents, including carcinogenic volatile  
15 aldehydes, polyaromatic hydrocarbons, aromatic  
16 amines and tobacco-specific nitrosamines."

17 Did you see that?

18 A. I read along with you.

19 Q. Did I read it correctly?

20 A. As far as I can tell, yes.

21 Q. Do you agree?

22 A. No, I don't. In fact, I think this whole  
23 concept of inhaling more deeply is one that's  
24 receiving intense debate in scientific circles  
25 outside of the industry and outside of Reynolds.

06109

1 It's clear that some smokers -- many

2 smokers, particularly when they're switched to a  
3 low-tar cigarette, will puff more intensely. They  
4 may puff more frequently. There's no question  
5 about that. But overall they still get lower tar  
6 levels.

7 The idea or the concept which you're  
8 describing here or which Hoffmann describes about  
9 deeper inhalation is a subject that's being  
10 intensely debated today.

11 Q. It is our working -- I'm continuing to  
12 read.

13 "It is our working hypothesis that two  
14 factors play a major role for the increased lung  
15 adenoma risk of cigarette smoking. Namely" -- and  
16 they give two factors -- "A, the organ  
17 specificity. And this is of the carcinogenic  
18 tobacco-specific nitrosamines, especially" -- and  
19 this is in parentheses -- "especially the strong  
20 lung carcinogen at intake; and, B, the fact that  
21 the smoke of the contemporary low-yield filtered  
22 cigarettes is inhaled more deeply." Do you see  
23 that?

24 A. Yes. I see that.

25 Q. Okay. Let's take it a piece at a time.

06110

1 A -- He says that it's two reasons for the increase  
2 in adenocarcinoma. A, the organ specificity of the  
3 carcinogenic TSNA and especially the strong lung  
4 carcinogen NNK. Now, do you agree or disagree that  
5 NNK is a strong lung carcinogen?

6 A. I really don't know. I know NNK has been  
7 classified to be a carcinogen. I don't know  
8 whether it's a strong lung carcinogen or not.

9 Q. How would you go to find out?

10 A. I would talk to some experts in the area  
11 of biology and medical science.

12 Q. How long have you had to find out? This  
13 was written in 94. Are you still trying to find  
14 out?

15 A. It's clear that NNK is a compound that's  
16 the center of Dr. Hoffmann's hypothesis. He said  
17 it in the very first line. "It is our working  
18 hypothesis." It is Dr. Hoffmann's hypothesis.

19 We're continuing to work on it and  
20 discuss it with him. And, in fact, we've been  
21 trying to reduce tobacco-specific nitrosamines in  
22 cigarettes and address those working hypotheses.

23 Q. B is -- and I think we've talked about  
24 that -- the fact that the smoke of a contemporary  
25 low-yield filtered cigarette is inhaled more

06111

1 deeply. And that you disagree with too?

2 A. What I said was and, I think, is the  
3 truth, is that, in fact, that's hotly debated among  
4 scientists today. The whole question about smoking  
5 behavior I think is very clear from the  
6 literature. Inhalation patterns, however, are  
7 another issue. And that's the point -- That's the  
8 subject of scientific work now outside of the  
9 industry even.

10 Q. And, Dr. Townsend, what if it's true?  
11 What are you going to do about it?

12 A. You mean, if it's true that this theory,

13 this hypothesis is correct? Is that your  
14 question?  
15 Q. Sure.  
16 A. Well, I think -- You know, one thing that  
17 we have already done is we have looked at this  
18 hypothesis and reduced tobacco-specific nitrosamine  
19 yields to smokers.  
20 Q. Well --  
21 A. Through tar and nicotine reduction.  
22 That's one approach.  
23 We're continuing to look at selective  
24 ways to reduce tobacco-specific nitrosamines in  
25 tobacco. We're continuing to look at smoking

06112

1 behavior to better understand how consumers smoke  
2 products and how they smoke a variety of products.  
3 So we're responding to this hypothesis  
4 very directly.  
5 Q. But if the reduction in tar and nicotine  
6 is not real because of the smoking changes that  
7 consumers use when they smoke the low delivery  
8 products, what are you going to do about that?  
9 A. Well, that's a complete  
10 mischaracterization of what I said. What I said  
11 was smokers can puff more intensely -- puff more  
12 deep, more intensely, take larger puffs, that is,  
13 take puffs more often. There's no question about  
14 that. There's a wide range of smoking behavior  
15 among smokers and even for one smoker over a period  
16 of time.  
17 But the bulk of the scientific literature  
18 shows that that kind of compensation, while it  
19 occurs, is not complete. The smokers of low-tar  
20 cigarettes on the average get less tar and less  
21 nicotine.  
22 What you were suggesting was that smokers  
23 of low tar and low nicotine cigarettes get the  
24 same. That's not true.

25 Q. So why is -- Assuming that there are more  
06113

1 low-tar cigarettes that you've been making on the  
2 market, why is there an epidemic of cancer?  
3 A. I think that's a wonderful question.  
4 It's a question that all of us would like to see  
5 the answer to, if, in fact, it's an epidemic. And  
6 you're asking me, again, and trying to characterize  
7 this as an epidemic. I don't know.  
8 But we need to know the answer to why  
9 there's lung cancer. Absolutely no question about  
10 that.

11 Q. Well, let me go on, if I could.  
12 Now, you -- What your response, as you  
13 put it, to the observation that there have been  
14 deaths from your product is to make certain  
15 modifications to the product and to do what you  
16 call general reduction, which reduces, as you  
17 contend, tar and nicotine both, correct?

18 A. No. I think that's a  
19 mischaracterization. We responded to the theories,  
20 and I think I made that very clear. That there are  
21 a variety of theories like Dr. Hoffmann's theory  
22 here that we respond to and through cigarette  
23 design to try to address those theories, and we've

24 been successful.  
25 Q. You've been successful?  
06114  
1 A. Yes.  
2 Q. You've been successful in saving lives?  
3 A. We've been successful in addressing these  
4 theories, and I hope it saves lives. If cigarette  
5 smoking causes cancer, if cigarette smoking  
6 contributes with other factors to causing cancer,  
7 then what we've done has made a difference.  
8 The Surgeon General himself in 1981  
9 suggested that lower-tar cigarettes, in fact, has  
10 reduced lung cancer rates.  
11 Q. And then by 1989 when the lung cancer  
12 rates were spiralling out of control you don't  
13 bother to read that Surgeon General report?  
14 A. I don't know whether it was spiralling  
15 out of control or not. Again, you're  
16 asking -- you're posing that to the wrong witness.  
17 Q. All right. Then let me pose the right  
18 question.  
19 In fact, in fact, Dr. Hoffmann has  
20 suggested a way out of this epidemic which you have  
21 not followed, true?  
22 A. I don't know what you're talking about.  
23 Q. Okay. I'll tell you. Let's go to the  
24 paper that you marked as evidence but didn't have,  
25 which is in the yellow binder, which is the 1995  
06115  
1 Hoffmann and Hoffmann?  
2 A. Tab?  
3 Q. One that you had -- You know which one  
4 I'm talking about.  
5 A. "The Changing Cigarette"?  
6 Q. "The Changing Cigarette."  
7 A. 1997?  
8 Q. 1997. This is the most recent  
9 publication by Dr. Hoffmann on this issue, is it  
10 not?  
11 A. It's the most recent publication that's  
12 actually hit the print. There's another manuscript  
13 that he's shared with us that covers this material  
14 again.  
15 Q. Okay. And you -- And let me just frame  
16 this. You don't know -- When I said there's  
17 another way out that you haven't followed, are you  
18 saying you don't know what I'm talking about?  
19 A. Well, I want to know what you're talking  
20 about because I don't believe that to be true at  
21 all.  
22 Q. Okay. Let's go to page 354, bottom of  
23 the page. In 1994 Benowitz -- You know who  
24 Allen Benowitz is, don't you? Neal Benowitz. I'm  
25 sorry.  
06116  
1 A. Yeah. It is Neal Benowitz.  
2 Q. Yeah. You know who he is, don't you?  
3 A. I know Neal, sure.  
4 Q. And he's a researcher at the University  
5 of California-San Francisco?  
6 A. That's right.  
7 Q. Researched nicotine addiction.  
8 A. He's done a lot of experiments with



9 nicotine.  
10 Q. Well, more than that, he's researched  
11 nicotine addiction?  
12 A. In part. He's done a lot more than that  
13 as well.  
14 Q. "In 1994 Benowitz and Henningfield posed  
15 the question, is there a threshold level of  
16 nicotine intake associated with addiction?" The  
17 author started this inquiry with the concept that  
18 smokers' addiction involves daily smoking of  
19 cigarettes, the difficulty not to smoke every day,  
20 and a high likelihood of withdrawal systems after  
21 cessation of smoking. However, there is a group of  
22 smokers who smoke five or fewer or fewer than five  
23 cigarettes per day yet do not appear to be  
24 addicted.

25 "Investigators calculated that a smoker

06117

1 of five cigarettes per day excretes 70  
2 nanograms" -- I don't want to get bogged down in  
3 this, but I'll read it because I don't know where  
4 it's getting me -- "70 nanograms cotinine per  
5 milliliter of urine. Urinary excretion of 50 to  
6 70 nanograms of cotinine per milliliter of urine  
7 corresponds to a daily intake of four to six  
8 milligrams of nicotine by means of inhaling  
9 cigarette smoke."

10 Now I'm getting to where I want to be.

11 "Benowitz and Henningfield, 1994,  
12 calculated further that for a young person smoking  
13 up to 30 cigarettes per day the maximally  
14 bioavailable dose of 0.17 milligrams of nicotine  
15 per cigarette would be the threshold level for a  
16 less addictive cigarette. Assuming the maximal  
17 bioavailability of 40 percent of nicotine in  
18 intense smoking, an upper limit of 0.4 to 0.5  
19 milligrams of nicotine per cigarette would be  
20 adequate to prevent the development of nicotine  
21 dependence among future smokers." Do you see that?

22 A. Yeah. I read along with you.

23 Q. Well, is it news to you?

24 A. I've read this before.

25 Q. Well, is it true?

06118

1 A. Is what part true? You read quite a  
2 lot.

3 Q. All right. Let me go back and -- Is it  
4 true that if your cigarettes had a -- were limited  
5 in nicotine to the threshold expressed here in this  
6 publication of 0.4 to 0.5 milligrams of nicotine  
7 per cigarette, would be adequate to prevent the  
8 development of nicotine dependence among future  
9 smokers. Now how about that? Do you agree with  
10 that?

11 A. Well, I know that Benowitz and  
12 Henningfield have advanced the number of possible  
13 limits, lower-limit thresholds for nicotine  
14 dependence. I think Dr. Benowitz has walked away  
15 from this theory since then. Do I agree with it?  
16 No, I don't.

17 Q. Dr. Benowitz has walked away from it?

18 A. That's my understanding.

19 Q. Then produce the paper.

20 A. And scientists, good scientists change  
21 their minds too.  
22 Q. Where's the paper, sir? Do you got it  
23 with you?  
24 A. Not with me.  
25 Q. Okay. So I'm trying to -- I'm trying to

06119

1 get to your answer. Do you agree or you don't  
2 agree?  
3 A. I think I've said I don't agree.  
4 Q. You don't agree that there's a threshold  
5 of nicotine below which nicotine -- which would be  
6 adequate to prevent the development of nicotine  
7 dependence among future smokers?  
8 A. I don't agree that there's a nicotine  
9 threshold that would in any way effect whether  
10 cigarettes are addictive or habit-forming.  
11 Q. So you're saying that nicotine has  
12 nothing to do with -- with addiction to cigarettes?  
13 A. No. That's not what I'm saying at all.  
14 Q. Okay. Well, what is the amount of  
15 nicotine according to you, that would be sufficient  
16 to keep people from getting addicted?  
17 A. Whether there's an amount of nicotine  
18 sufficient for, to use your word, addiction,  
19 depends on your definition of addiction.  
20 The fact is we make products and sell  
21 products to consumers that have a wide range of  
22 nicotine yields, going from fairly high levels of  
23 nicotine, like 1.2, 1.3 milligrams per cigarette,  
24 all the way down to levels that are very difficult  
25 to measure, down to around 0.1 milligrams per

06120

1 cigarette. So there's a wide range of products in  
2 the market. And smokers choose those products.  
3 Q. Smokers choose those products?  
4 A. Smokers choose among those products.  
5 Q. So you can choose a product that gets you  
6 addicted, or you can choose a product that doesn't;  
7 is that what you're saying?  
8 A. Yeah. And the answer to the earlier  
9 question, I don't agree that there's a threshold of  
10 habit formation or a nicotine threshold for habit  
11 formation or a threshold for addiction, depending  
12 on how you define it.  
13 Q. All right. Well, let me read on here  
14 just a little bit and see if you agree with this.  
15 Now, this is -- Again, this is from Hoffmann, 1997,  
16 the most recent paper out of the American Health  
17 Foundation on this subject.  
18 Now, let me ask you, is there anybody in  
19 the whole country or any research institution  
20 better than the American Health Foundation on  
21 tobacco?  
22 A. Well, it depends on which aspects of  
23 tobacco. If you're talking about smoke chemistry,  
24 R.J. Reynolds is better. If you're talking about  
25 smoking behavior, I think R.J. Reynolds and my

06121

1 competitors are better. If you're talking about  
2 tobacco-specific nitrosamines and developing  
3 theories and trying to connect that with  
4 epidemiology, certainly the American Health

5 Foundation has made advances in developing those  
6 theories.

7 Q. Well--

8 A. Different laboratories are good at  
9 different things.

10 Q. Well, has Reynolds published what it  
11 views as the threshold requirement for nicotine to  
12 induce dependence -- Call it dependence. Call it  
13 addiction. Call it whatever you want. Has  
14 Reynolds published how much it takes?

15 A. Again, I don't think there's a threshold  
16 of nicotine that would lead to habit formation,  
17 addiction or whatever you call it.

18 Q. Well, let's see first -- I'll read this  
19 in a minute. But let's see, has Reynolds studied  
20 this?

21 A. Yes, we have.

22 Q. Well, where are your papers? Are they  
23 published?

24 A. We've discussed this issue with a number  
25 of scientists outside of the industry, including

06122

1 Dr. Benowitz. I've had ongoing dialogue,  
2 scientific debate. And in many cases, many things  
3 we agree with Dr. Benowitz. Some things we don't  
4 agree with Dr. Benowitz.

5 It's not clear from the scientific  
6 literature that there is any nicotine threshold, as  
7 you put it.

8 Q. You keep saying that. I want to  
9 know -- You say you've researched it. Where is  
10 Reynolds' papers? Where is your science? Is it  
11 hiding in Reynolds?

12 A. We've -- There's actually several papers  
13 that have been published in the Journal of  
14 Psychopharmacology by R.J. Reynolds that talk about  
15 addiction. They talk about nicotine. They talk  
16 about a number of aspects of this exact topic.  
17 Published in a peer review journal, the Journal of  
18 Psychopharmacology published by our  
19 psychopharmacologists and by our psychologists and  
20 by our chemists and by our statisticians.

21 Q. And they talk about nicotine addiction?

22 A. There's quite extensive discussion about  
23 whether or not cigarettes are addictive, whether  
24 they're habit-forming, whether there's a threshold  
25 limit. So -- And, in addition to that, and even

06123

1 more so than that, we've been involved with  
2 scientists outside of Reynolds, outside of the  
3 industry, in discussing these issues from a  
4 scientific point of view.

5 Q. "It has to be realized that the  
6 calculations by Benowitz and Henningfield are based  
7 on several assumptions. Nevertheless, they offer a  
8 meaningful approach to the prevention of nicotine  
9 dependence among future smokers. The requirement  
10 that the tobacco of commercial cigarettes should  
11 not contain more than 0.4 or 0.5 milligrams  
12 nicotine can only be gradually achieved, perhaps  
13 over ten to 15 years. Currently the average level  
14 of nicotine in the tobacco of most cigarettes is  
15 eight to nine milligrams.

16 "Despite all the obstacles for setting  
17 an upper limit for the bioavailability of nicotine  
18 in cigarette smoke at .17 milligrams per cigarette,  
19 approaching this goal deserves serious  
20 consideration. However, the production of  
21 cigarettes that contain only 0.4 to 0.5 milligrams  
22 of nicotine is technically feasible by selecting  
23 the tobacco varieties with very low nicotine and/or  
24 by supercritical fluid extraction of the nicotine  
25 from the tobacco, with a citation."

06124

1 Now, let's take that apart. So you agree  
2 you can do it, right?

3 A. What I've said was technically it's  
4 possible to reduce the level of nicotine in tobacco  
5 or in cigarettes. It's possible to add nicotine to  
6 cigarettes in a technical way. Consumer  
7 acceptance, however, is the major issue there.

8 Q. Let's talk about that for a minute. And  
9 I think you talked about the Premier, and you said  
10 you didn't have consumer acceptance, and you test  
11 marketed it.

12 If I -- if -- How many packs of Winstons  
13 go out the door every day from Tobaccoville?

14 A. I don't know an exact number every day.  
15 Winston is about 5 percent of the U.S. market  
16 share.

17 Q. I just picked Winston because I happen to  
18 have it there. How about Salem or Salem Light or  
19 whatever else you make?

20 A. Well, the Salem brand family is less than  
21 that. It's about 3.8 percent of the U.S. market.

22 Q. Okay. And certainly you have an idea  
23 that you know among how many different people are  
24 buying these -- In other words, there's an average  
25 amount of cigarette consumption. But we don't know

06125

1 precisely because not everyone fills out a form of  
2 how much they buy. But there's an average that the  
3 industry uses like -- something like one pack a  
4 day, true?

5 A. There's some estimates of per capita  
6 consumption in the U.S.

7 Q. Okay. But that -- And among people who  
8 are actually buying them -- In other words, there's  
9 a per capita for the whole U.S., which is -- which  
10 reached a high of, like, 4,500 per person in the  
11 mid-60s. Do you remember that?

12 A. I don't remember that number.

13 Q. That included, though, everybody. That  
14 was just the total number of cigarettes divided by  
15 the total number of people.

16 But, in addition, if you take the amount  
17 that each user, each regular user or each user  
18 consumes, the industry has a feeling for how much  
19 people are smoking, right?

20 A. There are some estimates of smoker  
21 consumption.

22 Q. All right.

23 A. No question about it.

24 Q. And the typical user of Winstons, Salems  
25 and the like, smokes a pack -- let's say in a range

06126

1 from half a pack to a pack and a half a day. Fair  
2 enough?

3 A. Are you asking me to assume that?

4 Q. No. I just want your what's your best  
5 estimate. I don't want to quibble.

6 A. We'd have to go back and -- I don't want  
7 to quibble either. We would have to go back and  
8 look if you want to be accurate. I would say just  
9 in a general sense about a pack a day is typical.

10 Q. Okay. Now, so if you're selling the  
11 Winstons and the people are buying it at the rate  
12 of a pack a day -- Now, let's say that something  
13 happens and you start putting out the Winston with  
14 less nicotine in it so that people's addiction to  
15 the product is diminished, removed or relieved.  
16 And so instead of smoking a whole pack, they're  
17 smoking five cigarettes a day.

18 Now, assume that to be the case. Assume  
19 you went ahead and you said, "Okay, I'm the  
20 cigarette designer, and I'll tell you I've read  
21 this, and I know what's happening here, and we're  
22 going to reduce the nicotine and reduce the  
23 dependence and reduce the addiction. We don't want  
24 people smoking 20 a day. It's killing them. And  
25 let them smoke them if they want but not in an

06127

1 addictive way." You go ahead, and you reduce it,  
2 and that happens. I'm not asking you to assume  
3 that -- you agree that that would happen. But hear  
4 me out. Hear me out.

5 The guy who's tallying the sales of  
6 Winston, he's going to say, "We only  
7 have" -- "We're down to one-fifth of the sale or  
8 one quarter of the sales. People are only smoking  
9 five a day instead of 20 a day."

10 Now, wouldn't he come into the board room  
11 and say, "This brand is not consumer acceptable"?  
12 "It's losing in the marketplace"?

13 THE COURT: All right. Just a minute,  
14 please.

15 MR. JAMES JOHNSON: Your Honor, it's  
16 argumentative, compound, confusing, speculative.

17 THE COURT: Overruled.

18 THE WITNESS: What's your question?

19 Q. BY MR. WILNER: Wouldn't that be no  
20 consumer acceptance or poor consumer acceptance?

21 A. Well, first of all, I can't -- I can't  
22 agree at all with your -- your hypothesis because I  
23 know it's not correct. We have estimates of per  
24 smoker consumption. And you can easily compare  
25 Winston versus Now where Winston has a fairly high

06128

1 nicotine delivery yield of about, oh, in the  
2 neighborhood of 1.2, 1.3. And if you look at the  
3 per smoker consumption on the average, it's about  
4 the same for Winston as it is on the average for  
5 Now which has about 0.1 milligrams of nicotine.

6 So your assumption that this threshold  
7 somehow effects smoking per capita rates, which,  
8 again, is wrong. And, again, that gets us back to  
9 the underlying construct that there is some  
10 threshold value which Benowitz and Henningfield, if  
11 you'd read that, which is exactly why I disagree

12 with you.

13 Q. Well, you've said before, haven't you,  
14 that cigarettes that don't contain nicotine fail in  
15 the marketplace?

16 A. Cigarettes that have extremely low  
17 nicotine levels and have relatively high-tar levels  
18 have failed in the marketplace.

19 For example, one of my competitors  
20 developed and marketed several products actually,  
21 where the tobacco had been denicotized. A large  
22 amount of the nicotine was taken out through the  
23 supercritical fluid extraction process. So what  
24 they did was actually the reverse of what we've  
25 been talking about, because they thought that was

06129

1 one thing consumers wanted, was a very low nicotine  
2 cigarette. Kept the tar levels at normal values,  
3 reduced the nicotine to extremely low levels, and  
4 that cigarette was not acceptable.

5 Q. Now -- So first I'll ask you whether you  
6 agree or disagree, and then we'll -- then I want to  
7 ask you about some of the reports that you might  
8 have seen inside the R.J. Reynolds Tobacco  
9 Company. But my question, directed to what we just  
10 talked about, is what you call consumer acceptance  
11 is really sales, right?

12 A. I think that's one major -- probably the  
13 major piece of it.

14 Q. And sales are at least partially,  
15 not -- maybe not completely, but sales are at least  
16 partially the result of a continued heavy usage by  
17 a lot of the consumers. In other words, a pack a  
18 day, 20 cigarettes a day or more.

19 A. I'm not sure I'm  
20 understanding -- understand what you're saying.

21 Q. If you removed the habituated, addicted,  
22 dependent -- whatever you want to call  
23 it -- consumption, your brand would fail in the  
24 marketplace?

25 A. I think if you eliminate nicotine from

06130

1 cigarettes, those cigarettes are not consumer  
2 acceptable, and they would fail in the  
3 marketplace. It is clear to me from the work  
4 within Reynolds, the work with -- that my  
5 competitors have conducted and work outside the  
6 industry, that nicotine is important to the  
7 consumer acceptance of cigarettes.

8 Nicotine is important to the smoker.  
9 It's not the only reason they smoke, however.

10 Q. It's not the only reason they smoke?

11 A. Absolutely.

12 Q. Okay. Now, I think you've said earlier  
13 that you had looked at some of the records from  
14 inside the R.J. Reynolds Tobacco Company before  
15 coming in here and testifying, right?

16 A. Before coming in here and testifying?  
17 I've looked at many records within Reynolds in  
18 order to do my job. It's an ongoing process.

19 Q. Okay. So you are aware of the writings  
20 of Claude Teague on the subject of the crucial role  
21 of nicotine in the cigarette business?

22 A. I'm aware of that document, yes.

23 Q. You laugh?  
24 A. I'm aware of that document.  
25 Q. Is that document funny?  
06131  
1 A. Well, it's funny because it comes up in  
2 litigation like this.  
3 Q. Comes up in -- You mean, it comes up in  
4 litigation when people who have died from the  
5 result of your product challenge you and challenge  
6 your product design? That's when it comes up?  
7 A. No. It comes up because Dr. Teague has  
8 expressed a theory, as many other people do, about  
9 the role of nicotine. And many people just focus  
10 on that and take that as the truth, the gospel,  
11 when, in fact, it's a theory that Dr. Teague had,  
12 along with many other scientists.  
13 Q. So it seems like, Dr. Townsend, lots of  
14 people have theories, and you really don't know  
15 which ones to accept?  
16 MR. JAMES JOHNSON: Objection,  
17 Your Honor. Can we have a question rather than a  
18 comment?  
19 THE COURT: Sustained.  
20 Q. BY MR. WILNER: Dr. Townsend, let's just  
21 talk a little bit about the -- the document you  
22 laughed at. When did you first see it?  
23 A. Which document specifically? There are  
24 several.  
25 THE COURT: This may be a good time --

06132  
1 MR. WILNER: Okay.  
2 THE COURT: -- Mr. Wilner and  
3 Dr. Townsend, ladies and gentlemen, for us to  
4 conclude today's work.  
5 Thank you very much for you all's  
6 cooperation with us this week. And the Court is  
7 very appreciative of your continuing conscientious  
8 work in this case.  
9 Put the matter aside now. Do not discuss  
10 it among yourselves or anyone else. If there's  
11 anything written or in the news regarding this case  
12 or any other tobacco-related case, please do not  
13 read it or allow it to get your attention. And we  
14 shall see you again Monday at 10:00 o'clock. And  
15 thank you very much.  
16 (Whereupon, the evening recess ensued at  
17 12:34 p.m.)  
18  
19  
20  
21  
22  
23  
24  
25

06133  
1 COURT REPORTER'S CERTIFICATE  
2 STATE OF TENNESSEE:  
3 COUNTY OF SHELBY:  
4 I, LORI-ANN MASON, RPR, do hereby certify:  
5 1. The foregoing transcript of proceedings  
6 was taken before me at the time and place stated in  
7 the foregoing styled cause with the appearances as

8 noted;

9 2. Being a Court Reporter, I then reported  
10 the transcript of proceedings in Stenotype to the  
11 best of my skill and ability, and the foregoing  
12 pages contain a full, true and correct transcript  
13 of my said Stenotype notes then and there taken;

14 3. I am not in the employ of and am not  
15 related to any of the parties or their counsel, and  
16 I have no interest in the matter involved.  
17  
18  
19

20 Lori-Ann Mason, RPR  
21 Notary Public at Large  
22 State of Tennessee

23 My commission expires:  
24 August 29, 2001  
25

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